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EXAMINER
EHICHIOYA, FRED I

ART UNIT	PAPER NUMBER
2172	3

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/825,800	Applicant(s) HORVITZ ET AL.	
	Examiner Fred I. Ehichioya	Art Unit 2172	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1 - 56 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1 - 56 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. The application has been examined.

2. Claims 1 – 56 are rejected in this office action.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 – 9, 14, 15, 16, 19, 22, 23, 24, 25, 26, 27, 28, 32, 33, 34, 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,005,597

issued to David S. Barrett et al (hereafter "Barrett") in view of U.S. Patent 5,790,935 issued to David W. Payton (hereinafter "Payton").

Regarding claim 1, Barrett teaches a system for storing information locally that is received from an information delivery system for viewing at a local system, comprising;

an inference system adapted to be trained by the log selections of previously viewed information (see column 8, lines 52 – 55) and assign values to selections in a recommendation list based on the previously viewed information (see column 4, lines 60 – 65 and column 5, lines 17 – 18); and

a local storage system adapted to store selection information corresponding to the assigned values of the selections (see column 5, lines 51 – 61).

Barrett does not explicitly teach a database system adapted to log selections of previously viewed information at a local system that is received from an information delivery system.

However, Payton teaches a database system adapted to log selections of previously viewed information at a local system that is received from an information delivery system (see column 2, line 67 and column 3, lines 1 – 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine teaching of Barrett with the teaching of Payton wherein the viewing preferences of a viewer in a television program selection are monitored. These preferences of a viewer are used to create a dynamic viewer profile. Based on the viewer profile, available programs are sorted and presented to the viewer in

descending order of predicted interest. The motivation being that the viewer can quickly find the program of greatest interest without having to tediously search through large numbers of available programs.

Regarding claim 2, Barrett teaches the inference system employing collaborative filtering techniques on a temporal history of the previously viewed information to assign values (see column 8, lines 46 – 55) to selections in the recommendation list from a higher probability to a lower probability that a riser of the system would prefer to view information corresponding to an available selection (see column 4, lines 60 – 67 and column 5, lines 1 – 4).

Regarding claim 3, Barrett teaches the previously viewed information being time stamped by event type and the inference system being based on a single collaborative filtering model adapted to be trained according to time intervals that the information has been viewed (see column 2, lines 54 – 59).

Regarding claim 4, Barrett teaches the inference system being based on a plurality of separate collaborative filtering models, each collaborative filtering model being trained with the information from a particular time interval of temporal history that has been viewed (see column 8, lines 46 – 63).

Regarding claim 5, Barrett teaches the viewed information being time stamped by event occurrence and the inference system being based on a single collaborative filtering model adapted to be trained according to time intervals that the information has been viewed (see column 2, lines 54 – 59).

Regarding claim 6, Barrett teaches the inference system being further adapted to receive further attributes of at least one system user and utilize these attributes in assigning values to selections in the recommendation list (see column 4, lines 60 – 65).

Regarding claim 7, Barrett teaches the inference system being further adapted to receive attributes of other systems and utilize these attributes during training of the inference system (see column 8, lines 52 – 55).

Regarding claim 8, Barrett teaches the local storage system being adapted to assign sorting values to the selections based on an initial assigned value of the selection divided by the size of the selection (see column 10, lines 24 – 39).

Regarding claim 9, Barrett does not explicitly teach the local storage system being adapted to dynamically adjust the value of the selections based on a set of cache retention policies.

However, Payton teaches the local storage system being adapted to dynamically adjust the value of the selections based on a set of cache retention policies (see column 6, lines 33 – 39).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine teaching of Barrett with the teaching of Payton wherein the user manually adjust and assign value to the list. The rating is then sorted from highest requested item to the lowest requested selection. The motivation being that the least requested selection could easily be removed from the storage to create space for new selections.

Regarding claim 14, Barrett does not explicitly teach a multimedia system adapted to store information locally that is received from a program delivery system for viewing at a local system, comprising; a cache loading system operable to receive a list of selections from a program delivery system and store program selection information corresponding to the list of selections in a local memory system; and a utility system operable to monitor program selection information in the local memory system and communicate value information to the cache loading system for removing information residing in the local memory system in exchange for information having a higher value received by the program delivery system.

However, Payton teaches a cache loading system operable to receive a list of selections from a program delivery system and store program selection information corresponding to the list of selections in a local memory system (see column 5, lines 51 - 58); and

a utility system operable to monitor program selection information in the local memory system and communicate value information to the cache loading system for removing information residing in the local memory system in exchange for information having a higher value received by the program delivery system (see column 5, lines 21 – 45).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine teaching of Barrett with the teaching of Payton wherein the selections are stored in a compressed format to improve storage efficiency. The selection may also be encrypted. The motivation being that while maintaining storage efficiency, unauthorized users are also prohibited as a result of the program selection encryption.

Regarding claim 15, Barrett teaches the program selection information being television content (see column 1, lines 7 – 8).

Regarding claim 16, Barrett teaches the local memory system comprising a first portion for storing user defined selections to be stored, a second portion for defining live show selection to be stored and a third portion for defining general selections to be stored (see column 11, lines 44 – 61).

Regarding claim 19, Payton teaches the utility system dynamically adjusting the assigned values based on a cache retention policy (see column 6, lines 33 – 39).

Regarding claim 22, Barrett teaches the utility system comprising a time dependent utility model that dynamically adjusts the assigned values based on the time that the selection resides in the local memory system (see column 5, lines 41 – 57).

Regarding claim 23, Barrett teaches an inference system adapted to receive a reviewed program list from the program delivery system, provide a recommendation list (see column 8, lines 46 – 55 and column 9, lines 30 – 33) and dynamically assign values to selections in the recommendation list based on previously viewed programs, wherein the cache loading system stores the program selection information corresponding to the assigned values of the selections in the local storage system (see column 5, lines 41 – 59).

Regarding claim 24, Barrett teaches the inference system employing collaborative filtering techniques on a temporal history of previously viewed programs (see column 8, lines 46 – 45) and the selectable program list to dynamically assign values to selections in a recommended program list from a higher probability to a lower probability (see column 5, lines 41 – 57) that a user of the system would prefer to view information corresponding to an available selection (see column 4, lines 60 – 67 and column 5, lines 1 – 4).

Regarding claim 25, Barrett teaches the viewed programs being time stamped by event type and the inference system being based on a single collaborative filtering model adapted to be trained according to time intervals that the information has been viewed (see column 2, lines 54 – 59).

Regarding claim 26, Barrett teaches the inference system being based on a plurality of separate collaborative filtering models, each collaborative filtering model being trained with the information from a particular time interval of temporal history that has been viewed (see column 8, lines 46 – 63).

Regarding claim 27, Barrett teaches the viewed programs being time stamped by event occurrence and the inference system being based on a single collaborative filtering model adapted to be trained according to time intervals that the information has been viewed (see column 2, lines 54 – 59).

Regarding claim 28, Barrett teaches the inference system being further adapted to receive further attributes of at least one user of the system and utilize these attributes in assigning values to selections in the selectable program list (see column 4, lines 60 – 65).

Regarding claim 32, Barrett teaches a multimedia system adapted to store locally information received from a program delivery system for viewing at a local system, comprising:

multimedia program is being viewed until the entire multimedia program has been downloaded (see column 11, lines 44 – 53).

Barrett does not explicitly teach a local system having a memory loading system operable to determine a portion of a multimedia program, downloadable from a remote source to the local system, to store locally based on a local viewing rate and a remote transmission rate of the multimedia program; a storage system adapted to store a portion of the multimedia program necessary for uninterrupted viewing of the multimedia program; and a viewing system operable to retrieve the multimedia program from the storage system for viewing, wherein a remaining portion of the multimedia program is downloaded to the storage system while the multimedia program is being viewed until the entire multimedia program has been downloaded.

However, Payton teaches a local system having a memory loading system operable to determine a portion of a multimedia program, downloadable from a remote source to the local system, to store locally based on a local viewing rate and a remote transmission rate of the multimedia program (see column 5, lines 22 – 45);

a storage system adapted to store a portion of the multimedia program necessary for uninterrupted viewing of the multimedia program (see column 5, lines 31 – 39); and

a viewing system operable to retrieve the multimedia program from the storage system for viewing, wherein a remaining portion of the multimedia program is downloaded to the storage system (see column 5, lines 37 – 43).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine teaching of Barrett with the teaching of Payton wherein the receivers receive all the channels available to the user for simultaneous viewing and download. The motivation being that two channels can be simultaneously displayed on the television monitor thereby allowing the user to view two programs of interest at the same time.

Regarding claim 33, Barrett teaches the storage information being adapted to store portions of a plurality of downloadable selections based on a probability that a system user would like to view a selection (see column 5, lines 1 – 10).

Regarding claim 34, Barrett teaches an inference system adapted to determine the portions of downloadable selections to store in the storage system based on the temporal history of previously viewed programs of the system (see column 3, lines 66 – 67 and column 4, lines 1 – 4).

Regarding claim 35, Barrett teaches the inference system employing collaborative filtering techniques on a temporal history of previously viewed programs (see column 8, lines 46 – 55) and a selectable downloadable program list to dynamically assign values to selections in the selectable program list from a higher probability to a lower probability that a user of the system would prefer to view information corresponding to available selections (see column 4, lines 60 – 61 and column 5, lines 1 – 4).

Claims 37 – 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barrett in view of U.S. Patent 6,233,734 issued to Douglas B. Macrae (herein after "Macrae").

Regarding claim 37, Barrett teaches a method for determining user preferred content to be stored in a local storage system having definite limits, the user preferred content being received from an information delivery system for viewing at a local system, comprising;

receiving a list of available selections (see column 2, lines 57 – 67 and column 4, lines 11 – 22);

assigning a value to each of the available selections (see column 5, lines 16 – 29);

storing information relating to a corresponding selection in the local storage system for the available selections based on value of the selection until the limits of the local storage system is obtained (see column 5, lines 57 – 65);

dynamically adjusting the values of the available selections based on at least one cache retention policy (see column 5, lines 41 – 57); and

Barrett does not explicitly teach removing information from the storage medium as its value causes it to fall outside the limits of the storage medium.

However, Macrae teaches removing information from the storage medium as its value causes it to fall outside the limits of the storage medium (see column 12, lines 45 – 50).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine teaching of Barrett with the teaching of Macrae wherein old selections that not frequently used are removed from storage to create space for new selections. The list is sorted and stored in the memory. The motivation being that the least requested selection could easily be removed from the storage to create space for new selections and therefore cost effective.

Regarding claim 38, Barrett teaches the step of assigning values to available selections comprising employing collaborative filtering techniques on a temporal history of previously viewed information and the list of available selections to determine a higher probability to a lower probability that a system user would prefer to view information corresponding to an available selection (see column 4, lines 60 –67 and column 5, lines 1 – 4).

Regarding claim 39, Barrett teaches the step of assigning values to available selections further comprising considering attributes of at least one system user and utilizing these attributes in assigning values to selections in the available selection list (see column 4, lines 60 – 65).

Regarding claim 40, Barrett teaches the step of assigning values to available selections further comprising considering attributes of other systems and utilizing these attributes in providing global values to a list of available selections to a cluster of systems based on the temporal viewing history of the systems of the cluster (see column 5, lines 41 – 64).

Regarding claim 41, Barrett teaches a step of determining an expected value density of each selection by dividing the value of the selection by the size of the selection for each selection stored in the local storage system (see column 4, lines 60 – 65 and column 7, lines 64 – 65).

Regarding claim 42, Barrett teaches the assigned values are dynamically adjusted based on the time that the selection resides in the local storage system (see column5, lines 41 – 47).

Barrett does not explicitly teach the at least one cache retention policy being a value aging rule set.

However, Macrae teaches the at least one cache retention policy being a value aging rule set (see column 12, lines 41 – 43).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine teaching of Barrett with the teaching of Macrae wherein the at least one cache retention policy being a value aging rule set such that the assigned values are dynamically adjusted based on the time that the selection resides in the local storage system. The list is sorted and stored in the new memory space. The

motivation being that this is cost savings since the least requested selection could easily be removed from the storage to create space for new selections.

Regarding claim 43, Barrett teaches receiving new selections with assigned values and dynamically adjusting the location of the stored information and new information in the local storage system (see column 5, lines 41 – 47).

Barrett does not explicitly teach wherein information is aged out of the local storage system having lower values that falls outside the limits of the local storage system.

However, Macrae teaches information is aged out of the local storage system having lower values that falls outside the limits of the local storage system (see column 12, lines 41 – 50).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine teaching of Barrett with the teaching of Macrae wherein the user manually adjust and assign value to the list. The list is then sorted and stored in the new memory space. The existing memory space is therefore selected for deleting and arranging of old selection. The motivation being that the least requested selection could easily be removed from the storage to create space for new selections.

Regarding claim 44, Barrett does not explicitly teach the at least one cache retention policy comprising a plurality of cache retention policies grouped by class types with different cache retention policies for aging the assigned values of selections within different class types.

However, Macrae teaches the at least one cache retention policy comprising a plurality of cache retention policies grouped by class types with different cache retention policies for aging the assigned values of selections within different class types (see column 12, lines 37 – 42 and lines 59 – 61).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine teaching of Barrett with the teaching of Macrae wherein items of the same class are tagged with specific data type identifier. Each item of the selection is associated with one of a number of categories. This grouping creates data storage efficiency. The selection may also be encrypted. The motivation being that while maintaining storage efficiency, unauthorized users are also prohibited as a result of the program selection encryption.

Regarding claim 45, Barrett teaches the local storage system comprising a first portion for storing user defined selections to be stored, a second portion for defining live show selection to be stored and a third portion for defining general selections to be stored (see column 11, lines 44 – 61).

Regarding claim 46, Macrae teaches recording programs that are currently in progress at a given time period for selective viewing of at least one of the programs from a beginning of a program in the second portion (see column 17, lines 56 – 67 and column 18, lines 1 - 33).

Regarding claim 47, Barrett teaches a system for determining user preferred content to be stored in a local storage system having definite limits, the user preferred content being received from an information delivery system for viewing at a local system, comprising;

means for receiving a list of available selections (see column 2, lines 57 – 67 and column 4, lines 11 – 22);

means for assigning a value to each of the available selections (see column 5, lines 16 – 29);

means for storing information relating to a corresponding selection in the local storage system for the available selections based on the assigned value until the limits of the local storage system is obtained (see column 5, lines 57 – 65);

means for dynamically adjusting the values of the available selections based on a utility of the selection (see column 5, lines 41 – 47); and

Barrett does not explicitly teach means for removing information from the storage medium as its value causes it to fall outside the limits of the storage medium.

However, Macrae teaches means for removing information from the storage medium as its value causes it to fall outside the limits of the storage medium (see column 12, lines 45 – 50).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine teaching of Barrett with the teaching of Macrae wherein old selections that not frequently used are removed from storage to create space for new selections. The list is sorted and stored in the memory. The motivation being that

the least requested selection could easily be removed from the storage to create space for new selections and therefore cost effective.

Regarding claim 48, Barrett teaches the means for assigning values to available selections being adapted to employ collaborative filtering techniques on a temporal history of previously viewed information (see column 8, lines 46 – 45) and the list of available selections to determine a higher probability to a lower probability that a system user would prefer to view information corresponding to an available selection (see column 4, lines 60 – 67 and column 5, lines 1 - 4).

Regarding claim 49, Barrett teaches means for determining an expected density value of selections by dividing the value of the selection by the size of the selection for each selection stored in the local storage system (see column 4, lines 60 – 65 and column 7, lines 64 – 65).

Regarding claim 50, Barrett teaches the utility of the selection being based on the time that the selection resides in the local storage system (see column 6, lines 4 – 7).

Regarding claim 51, Barrett teaches the available selections being television programs and the local system being a television (see column 1, lines 7 – 8).

Regarding claim 52, Barrett teaches means for recording television programs that are currently in progress at a given time period for selective viewing of at least one of the programs from a beginning point (see 6, lines 54 – 61).

Regarding claim 53, Barrett teaches a multimedia system adapted to store television content locally that is received from a program delivery system for viewing at a local system, comprising;

a cache loading system operable to receive a list of live show selections from a program delivery system and store the live show selections corresponding to the list of selections in a local memory system (see column 5, lines 57 – 61 and column 6, lines 7 – 29); and

a utility system operable to monitor program selection information in the local memory system and communicate value information to the cache loading system wherein high values are assigned to live show selections currently in progress (see column 4, lines 23 – 26 and lines 60 – 65).

Barrett does not explicitly teach decayed after the show is no longer live wherein live shows residing in the local memory having lower values are aged out in exchange for live shows having a higher value received by the program delivery system.

However, Macrae teaches decayed after the show is no longer live wherein live shows residing in the local memory having lower values are aged out in exchange for live shows having a higher value received by the program delivery system (see column 12, lines 25 – 43).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine teaching of Barrett with the teaching of Macrae wherein high values are assigned to live show selections currently in progress, which are quickly decayed after the show is no longer live wherein live shows residing in the local memory having lower values are aged out in exchange for live shows The list is sorted and stored in the memory. The motivation being that the least requested selection could easily be removed from the storage to create space for new selections and therefore cost effective.

Regarding claim 54, Macrae teaches the cache loading system being further adapted to record live shows at any given time period for N number of shows employing N number of tuners, wherein the shows are selected based on the temporal history of previously viewed programs within a time interval (see column 6, lines 54 – 64).

Regarding claim 55, Macrae teaches the cache loading system being further adapted to record other shows that are not live with the live shows wherein the live shows are provided with higher initial values than the other shows and aged out quicker when no longer live than the other shows (see column 12, lines 40 – 47).

Regarding claim 56, Barrett teaches live show selections beginning at starting standard times, starting at one of the hour and half hour, are provided with higher initial values than the other shows and aged out quicker when no longer live than the other shows, wherein the higher initial values are determined based on the likelihood that the show will be viewed by a user of the system (see FIG. 1).

Claims 10 - 13, 17, 18, 20, 21, 29, 30, 31, 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barrett in view of Payton and further in view Macrae.

Regarding claim 10, Barrett teaches the local storage system being further adapted to receive new selections with assigned values and dynamically adjust the location of the stored information and new information based on the new selections in the local storage system (see column 5, lines 41 – 47).

Barrett or Payton does not explicitly teach wherein information is aged out of the local storage system based on an expected value density of each selection.

However, Macrae teaches information is aged out of the local storage system based on an expected value density of each selection (see column 12, lines 41 – 50).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine teaching of Barrett and Payton with the teaching of Macrae wherein the user manually adjust and assign value to the list. The list is then sorted and stored in the new memory space. The existing memory space is therefore selected for deleting and arranging of old selection. The motivation being that the least requested selection could easily be removed from the storage to create space for new selections and therefore cost effective.

Regarding claim 11, Payton teaches aged out information is reduced in size and quality by compressing the information and stored on the local storage system based on the likelihood that the user will view the information prior to removing the information from the local storage system (see column 4, lines 59 – 60 and column 5, lines 16 - 21).

Regarding claim 12, Barrett teaches the expected value density of a selection being determined based on the assigned value of the selection divided by the size of the selection (see column 4, lines 60 – 65) and column 7, lines 64 – 65).

Regarding claim 13, Macrae teaches selections are grouped by class types with different cache retention policies for aging the assigned values of selections within different class types (see column 12, lines 37 – 42 and lines 59 – 61).

Regarding claim 17, Barrett teaches the local storage system being further adapted to receive new selections with assigned values, the utility system dynamically adjusting the location of the stored information and new information based on the new selections in the local storage system (see column 5, lines 41 – 47)

Barrett or Payton does not explicitly teach wherein information is aged out of the local storage system based on an expected value density of each selection.

However, Macrae teaches wherein information is aged out of the local storage system based on an expected value density of each selection (see column 12, lines 41 – 50).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine teaching of Barrett and Payton with the teaching of Macrae wherein the user manually adjust and assign value to the list. The list is then sorted and stored in the new memory space. The existing memory space is therefore selected for deleting and arranging of old selection. The motivation being that the least requested selection could easily be removed from the storage to create space for new selections.

Regarding claim 18, Barrett teaches the expected value density of a selection being determined based on the assigned value of the selection divided by the size of the selection (see column 4, lines 60 – 65 and column 7, lines 64 – 65).

Regarding claim 20, Barrett or Payton does not explicitly teach selections are grouped by class types with different cache retention policies for aging the assigned values of selections within different class types.

However, Macrae teaches selections are grouped by class types with different cache retention policies for aging the assigned values of selections within different class types (see column 12, lines 37 – 42 and lines 59 – 61).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine teaching of Barrett and Payton with the teaching of Macrae wherein items of the same class are tagged with specific data type identifier. Each item of the selection is associated with one of a number of categories. This grouping creates data storage efficiency. The selection may also be encrypted. The motivation being that while maintaining storage efficiency, unauthorized users are also prohibited as a result of the program selection encryption.

Regarding claim 21, Barrett teaches the likelihood that a user will view a program based on the amount of time that has passed since the program has been recorded and not yet viewed (see column 4, lines 66 –67 and column 5, lines 1 – 4).

Barrett or Payton does not explicitly teach the cache retention policies of each class type is initially defined based on a default time-dependent decay function, the time-dependent decay function being continuously refined based on the likelihood that a user will view a program based on the amount of time that has passed since the program has been recorded and not yet viewed.

However, Macrae teaches the cache retention policies of each class type is initially defined based on a default time-dependent decay function, the time-dependent decay function being continuously refined (see column 12, lines 32 – 34).

Regarding claim 29, Barrett or Payton does not explicitly teach the cache loading system being further adapted to record live shows at any given time period for N number of shows employing N number of tuners, wherein the shows are selected based on the temporal history of previously viewed programs within a time interval covering the any given time period.

However, Macrae teaches the cache loading system being further adapted to record live shows at any given time period for N number of shows employing N number of tuners, wherein the shows are selected based on the temporal history of previously viewed programs within a time interval covering the any given time period (see column 6, lines 54 – 64).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine teaching of Barrett and Payton with the teaching of Macrae wherein selections are recorded by external device (see FIG. 3). The motivation

being that the user can instantaneously view the recorded program or simply view the broadcast.

Regarding claim 30, Barrett or Payton does not explicitly teach the multimedia system residing on a television set top box.

However, Macrae teaches the multimedia system residing on a television set top box (see column 2, lines 21 – 22).

Regarding claim 31, Barrett or Payton does not explicitly teach the information system residing on a remote server communicatively coupled to at least one set top box, wherein a recommendation list and information corresponding to programs in the recommendation list are generated by the server and transmitted to the set top box.

However, Macrae teaches the information system residing on a remote server communicatively coupled to at least one set top box, wherein a recommendation list and information corresponding to programs in the recommendation list are generated by the server and transmitted to the set top box (see column 5, lines 19 – 21).

Regarding claim 36, Barrett does not explicitly teach a utility system operable to monitor program selection information in the storage system and communicate aging information to the memory loading system for aging out older program information residing in the storage system in exchange for newer information.

Payton teaches a utility system operable to monitor program selection information in the storage system (see column 8, lines 37 – 39).

Barrett or Payton does not teach communicate aging information to the memory loading system for aging out older program information residing in the storage system in exchange for newer information.

However, Macrae teaches communicate aging information to the memory loading system for aging out older program information residing in the storage system in exchange for newer information (see column 12, lines 41 – 50).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine teaching of Barrett and Payton with the teaching of Macrae wherein old items are removed from the database to create space for new items. The motivation is that the efficient management of the storage space is cost effective when additional memory space is desired for new selections.

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred I. Ehichioya whose telephone number is 703-305-8039. The examiner can normally be reached on M - F 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Y. Vu can be reached on 703-305-4393. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-7239 for regular communications and 703-746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-303-3900.

Fred Ehichioya
May 17, 2003

SHAHID AL ALAM
PATENT EXAMINER